

CURRICULUM VITAE

Jeff Stein
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CONTACT INFORMATION

Center for Transformative Research on Health Behaviors
Virginia Tech Carilion Research Institute
1 Riverside Circle
Roanoke, VA 24016
Tel: (540) 526-2124
Email: jstein1@vtc.vt.edu

RESEARCH INTERESTS

Behavioral economics, psychology, health behavior, lifestyle-related disease, tobacco regulatory science

PROFESSIONAL POSITIONS

2016-present Research Assistant Professor, Virginia Tech Carilion Research Institute
2014-2016 Research Associate, Virginia Tech Carilion Research Institute

EDUCATION & TRAINING

2010-2016 Ph.D., Behavioral Psychology, Utah State University
Advisor: Gregory J. Madden
2008-2010 M.A., Applied Behavioral Science, University of Kansas
Advisor: Gregory J. Madden
1998-2002 B.A., English Literature, University of Kansas

EDITORIAL POSITIONS

2015-present Editorial Board, *Journal of the Experimental Analysis of Behavior*
2008-present Ad hoc reviewer for:
Alcoholism: Clinical and Experimental Research
Analysis of Gambling Behavior
Appetite
Behavior Research Methods
Behavioural Processes
BMJ Open
Clinical Psychological Science
Drug and Alcohol Dependence
Experimental and Clinical Psychopharmacology
Journal of Experimental Psychology: Animal Behavior Processes
Journal of the Experimental Analysis of Behavior
Journal of Gambling Studies
Nicotine & Tobacco Research
Organizational Behavior and Human Decision Processes
PLoS ONE
Psychiatry Research
Psychology of Addictive Behaviors
Psychopharmacology
The Psychological Record

AWARDS & HONORS

2012	Walter R. Borg Scholarship, Department of Psychology (\$3000), Utah State University.
2010	Experimental Analysis of Behavior Fellowship (\$2000), Society for Advancement of Behavior Analysis.
2008	Donald M. Baer Award for Outstanding Achievement in Basic Research and Conceptual Foundations, Department of Applied Behavioral Science, University of Kansas.
2007	Undergraduate Research Assistantship Award (\$1000), Office of Research and Graduate Studies, University of Kansas.

PROFESSIONAL AFFILIATIONS

2016-present	International Study Group Investigating Drugs as Reinforcers
2014-2015	American Psychological Association
2014-present	College on Problems of Drug Dependence
2014-present	Society for Research on Nicotine and Tobacco
2008-present	Society for the Quantitative Analysis of Behavior
2007-present	Association for Behavior Analysis
2008-2010	Mid-American Association for Behavior Analysis
2007-2008	Southeastern Association for Behavior Analysis

GRANTS

Principal Investigator (PI)

1R21DA046339-01 (PI: Stein)	8/1/2018 – 7/31/2020
NIH-NIDA	\$150,000 Annual Direct

E-Cigarette Substitution: Nicotine Strength as a Unit Price Manipulation and its Implications for Regulations

The overall goal of this project is to use an experimental analogue of the real-world tobacco marketplace to examine the effects of nicotine strength on e-cigarette consumption and the likelihood that current smokers will either switch to e-cigarettes (which may reduce harm) or use both products in combination (which may increase harm).

Role: PI

1R21NR018349-01 (PI: Stein)	7/26/2018 – 6/30/2020
NIH-NINR	\$160,061 Annual Direct

A Remotely Delivered Episodic Future Thinking Intervention to Improve Management of Type 2 Diabetes

The overall goal of this project is to use a remotely delivered prospective thinking intervention to improve treatment adherence and adherence-related outcomes in type 2 diabetes.

Role: PI

Pilot feasibility grant (PI: Stein)	7/1/2018 – 06/30/2019
Ctr for Transform. Res. on Health Behav, Va Tech	\$20,000 Annual Direct

Delay Discounting and Treatment Adherence in Hormone-Responsive Breast Cancer

The goal of this research is two-fold. First, we seek to identify associations between high rates of delay discounting and HT nonadherence in patients undergoing breast cancer treatment. The

second goal of the proposed research is to investigate the acute efficacy of an episodic future thinking (EFT) intervention for reducing discounting and improving valuation of future health in breast cancer patients.

Role: MPI

Pilot Project Grant for Early Career Investigators (PI: Stein) 4/1/2017 – 3/31/2018; complete
Parent grant: 1P01 CA200512 (MPI: Cummings, Fong) \$15,000 Annual Direct
NIH-NCI

Cross-Sectional and Longitudinal Assessment of E-Cigarette Valuation and Smoking Cessation

This pilot project utilizes behavioral economic methods to evaluate how current and former cigarette smokers value electronic cigarettes and to examine behavioral-economic and other predictors of electronic cigarettes' efficacy in smoking cessation.

Role: PI

Co-Investigator (Co-I)

4U19CA157345-05 (MPI: Hatsukami, Shields) 9/20/2012 - 8/31/2018; NCE
NIH-NCI (Univ. of Minn. Subcontract)

Models for Tobacco Product Evaluation (Sub-Project 7351: Behavioral Economics Methods for Assessing Tobacco Products Abuse Liability)

The goal of the proposed research is to develop and validate methods for assessing abuse liability (the likelihood that a product will be used or abused) of tobacco products.

Role: Co-I

5UH2DK109543-03 (MPI: Epstein, Bickel) 9/1/2015 – 6/30/2018
NIH-NIDDK (Univ. at Buffalo Subcontract) \$254,181 Annual Direct (sub)

Delay Discounting as a Target for Self-Regulation in Prediabetes

We proposed a series of observational, laboratory and field studies to identify delay discounting as a behavioral target to improve behavioral and medical adherence and metabolic control in adults who are in the prediabetes stage at high risk for development of overt Type 2 diabetes.

Role: Co-I

1P01CA217806-01 (MPI: Hatsukami, Shields) 9/20/2017 – 8/31/2022
NIH-NCI (Univ. of Minn. Subcontract) \$199,804 Annual Direct (sub)

Consortium on Methods of Evaluating Tobacco (COMET): Filter Ventilation and Product Standards

The overall goal of this project is to model regulatory restrictions banning cigarette filter ventilation and determine their effects on consumption of both cigarettes and a wide range of alternative tobacco products. Testing potential regulatory actions under controlled conditions will facilitate evidence-based policies that have a net benefit to health.

Role: Co-I

5P01CA200512-03 (MPI: Cummings, Fong) 4/19/2016 – 3/31/2021
NIH-NCI (Med. Univ. of SC Subcontract) \$222,758 Annual Direct (sub)

Evaluating How Tobacco Control Policies are Shaping the Nicotine Delivery Market (Sub-Project 8134: The Experimental Tobacco Marketplace (ETM))

The number one preventable cause of mortality and morbidity in the US is cigarette smoking. Identifying policies to reduce or eliminate smoking should therefore be a primary goal of regulatory science. The overall goal of this project is to experimentally assess the factors that influence tobacco consumption and consumer behavior. Testing proposed policy changes, such as restrictions on vaporized nicotine product use, in a laboratory setting before enacting

them will help to identify any untoward, unanticipated effects and bolster the successful implementation of such policies within society.

Role: Co-I (Subcontract)

5R01DA034755-05 (PI: Bickel)
NIH-NIDA

7/15/2013 – 6/30/2019; NCE

Self-Control Improvement Intervention (SCII): Improving Abstinence in Smokers

This proposed project is a systematic effort to translate basic research on self-control failure into effective interventions to normalize or improve self-control (i.e., reduce delay discounting) among cigarette smokers. The project will delineate the target for subsequent intervention, self-control failure (i.e., excessive delay discounting), and its functional relation to measures that could determine whether smokers are stimulus bound.

Role: Co-I

PUBLICATIONS

[Google Scholar profile](#)

Citations: 477

h-index: 13

*i*10-index: 17

Chapters

1. Bickel, W. K., **Stein, J. S.**, Moody, L., Snider, S. E., Mellis, A. M, & Quisenberry, A. J. (2017). Toward narrative theory: Interventions for reinforcer pathology in health behaviors. In J. Stevens (Ed.), *Impulsivity: How time and risk influence decision-making*. Springer New York.
2. Bickel, W. K., Moody, L., Snider, S. E., Mellis, A. M, **Stein, J. S.**, & Quisenberry, A. J. (2017) The behavioral economics of tobacco products: Innovations in laboratory methods to inform regulatory science. In Y. Hanoch, T. Rice and A. Barnes (Eds.), *Behavioral Economics and Health Behaviors: Key Concepts and Current Research*.
3. Bickel, W. K., Quisenberry, A. J., Snider, S. E., **Stein, J. S.**, & Hanlon, C. (2016). Competing neurobehavioral decision systems theory of cocaine addiction: From mechanisms to therapeutic opportunities. *Progress in Brain Research: Neuroscience for Addiction Medicine*.
4. **Stein, J. S.**, & Madden, G. J. (2013). Delay discounting and drug abuse: Empirical, conceptual, and methodological considerations. In Mackillop, J., & de Wit, H. (Eds.). *The Wiley-Blackwell Handbook of Addiction Psychopharmacology* (pp. 165-208). Wiley-Blackwell: Oxford, UK.

Peer-reviewed articles, in print

1. Athamneh, L., **Stein, J. S.**, Amlung, M., & Bickel, W. K. (in press). Validation of a brief behavioral economic assessment of demand among cigarette smokers. *Experimental & Clinical Psychopharmacology*.
2. Pope, D. A., Poe, L., **Stein, J. S.**, Snider, S. E., Bianco, A. G., & Bickel, W. K. (in press). Past and future preference reversals are predicted by delay discounting in smokers and non-smokers. *Experimental & Clinical Psychopharmacology*.
3. **Stein, J. S.**, Heckman, B. W., Pope, D. A., Perry, E. S., Fong, G. T., Cummings, K. M., & Bickel, W. K. (2018). Delay discounting and e-cigarette use: An investigation in current, former, and never cigarette smokers. *Drug and Alcohol Dependence*. Advance Online Publication.
4. Mellis, A., **Stein, J. S.**, Athamneh, L., Sze, Y. Y., Epstein, L. H., & Bickel, W. K. (2018).

- Less is more: Negative income shock increases immediate food preference in cross commodity discounting and food demand. *Appetite*. Advance Online Publication.
5. Bickel, W. K., Pope, D. A., Kaplan, B. A., DeHart, W. B., Koffarnus, M. N., & **Stein, J. S.** (2018). Electronic cigarette substitution in the Experimental Tobacco Marketplace: A review. *Preventive Medicine*. Advance Online Publication.
 6. Pope, D., Poe, L., **Stein, J. S.**, Kaplan, B. A., Heckman, B. W., Epstein, L. H., & Bickel, W. K. (2018). Experimental tobacco marketplace: substitutability of e-cigarette liquid for cigarettes as a function of nicotine strength. *Tobacco Control*. Advance Online Publication.
 7. **Stein, J. S.**, Koffarnus, M. N., Stepanov, I., Hatsukami, D. K., & Bickel, W. K. (2018). Cigarette and e-liquid demand and substitution in e-cigarette-naïve smokers. *Experimental and Clinical Psychopharmacology*, 26, 233-240.
 8. **Stein, J. S.**, Tegge, A., Turner, J. K., & Bickel, W. K. (2018). Episodic future thinking reduces delay discounting and cigarette demand: An investigation of the good-subject effect. *Journal of Behavioral Medicine*.
 9. Epstein, L. H., **Stein, J. S.**, Paluch, R. A., MacKillop, J., & Bickel, W. K. (2018). Binary components of food reinforcement: Amplitude and persistence. *Appetite*, 120, 67-74.
 10. **Stein, J. S.**, Koffarnus, M. N., O'Connor, R., Hatsukami, D., & Bickel, W. K. (2017). Effects of filter ventilation on behavioral economic demand for cigarettes: A preliminary investigation. *Nicotine & Tobacco Research*, ntx164.
 11. **Stein, J. S.**, Sze, Y., Athamneh, L., Koffarnus, M. K., Epstein, L. H., & Bickel, W. K. (2017). Think fast: Rapid assessment of the effects of episodic future thinking on delay discounting in overweight/obese participants. *Journal of Behavioral Medicine*, 40(5), 852-838.
 12. Athamneh, L., **Stein, J. S.**, & Bickel, W. K. (2017). Will delay discounting predict intention to quit smoking? *Experimental and Clinical Psychopharmacology*, 25(4), 273-278.
 13. Athamneh, L., **Stein, J. S.**, Pope, D. A., Quisenberry A. J., & Bickel, W. K. (2017). The association between parental history and delay discounting among individuals in recovery from addiction. *Drug and Alcohol Dependence*, 179, 153-158.
 14. Sze, Y., **Stein, J. S.**, Paluch, R., Bickel, W. K., & Epstein, L. H. (2017). Bleak present, bright future: Online episodic future thinking, scarcity, delay discounting, and food demand. *Clinical and Psychological Science*, 2167702617696511.
 15. **Stein, J. S.**, Wilson, A. G., Koffarnus, M. N., Judd, M. C., & Bickel, W. K. (2017). Naturalistic assessment of demand for cigarettes, snus, and nicotine gum. *Psychopharmacology*, 234(2), 245-254.
 16. Bickel, W. K., Pope, D. A., Moody, L. N., Snider, S. E., Athamneh, L. N., **Stein, J. S.**, & Mellis, A. M. (2017). Decision-based disorders: The challenge of dysfunctional health behavior and the need for a science of behavior change. *Policy Insights from the Behavioral and Brain Sciences*, 2372732216686085.
 17. Mellis, A. M., Woodford, A. E., **Stein, J. S.**, & Bickel, W. K. (2017). A second type of magnitude effect. A second type of magnitude effect: Reinforcer magnitude differentiates delay discounting between substance users and controls. *Journal of the Experimental Analysis of Behavior*, 107, 151-160.
 18. Brewer, A. B., Johnson, P. S., **Stein, J. S.**, Schlund, M., & Williams, D. C. (2017). Aversive

- properties of negative incentive shifts in Lewis and Fischer 344 rats. *Behavioural Brain Research*, 319, 174-180.
19. **Stein, J. S.**, Wilson, A. G., Koffarnus, M. N., Daniel, T. O., Epstein, L. H., & Bickel, W. K. (2016). Unstuck in time: Episodic future thinking reduces delay discounting and cigarette smoking. *Psychopharmacology*, 233, 3771-3778
 20. Bickel, W. K., Snider, S. E., Quisenberry, A. J., & **Stein, J. S.** (2016). Reinforcer pathology: The behavioral economics of abuse liability testing. *Clinical Pharmacology & Therapeutics*, 101,185–187.
 21. Bickel, W. K., Mellis, A. M., Snider, S. E., Moody, L., **Stein, J. S.**, & Quisenberry, A. J. (2016). Novel therapeutics for addiction: Behavioral economic and neuroeconomic approaches. *Current Treatment Options in Psychiatry*, 1-16.
 22. Koffarnus, M. N., Franck, C. T., **Stein, J. S.**, & Bickel, W. K. (2015). A modified exponential behavioral economic demand model to better describe consumption data. *Experimental and Clinical Psychopharmacology*, 23, 504-512.
 23. **Stein, J. S.**, Koffarnus, M., Snider, S. E., Quisenberry, A. J., & Bickel, W. K. (2015). Identification and management of nonsystematic purchase-task data: Toward best practice. *Experimental and Clinical Psychopharmacology*, 23, 377-388.
 24. Renda, C. R., **Stein, J. S.**, & Madden, G. J. (2015). Effects of working-memory training on impulsive choice in male rats. *Journal of the Experimental Analysis of Behavior*, 103(1), 50-61. Special issue: "Experimental Manipulation of Delay Discounting and Related Processes."
 25. **Stein, J. S.**, Renda, C. R., Hinnenkamp, J. E., & Madden G. J. (2015). Impulsive choice, alcohol consumption, and pre-exposure to delayed rewards: II. Potential mechanisms. *Journal of the Experimental Analysis of Behavior*, 103(1), 33-49. Special issue: "Experimental Manipulation of Delay Discounting and Related Processes."
 26. **Stein, J. S.**, Renda, C. R., Barker, S. M., Liston, K. J., Shahan, T. A., & Madden G. J. (2015). Impulsive choice predicts anxiety-like behavior, but not alcohol or sucrose self-administration, in male Long-Evans rats. *Alcoholism: Clinical and Experimental Research*, 39(5), 932-940.
 27. Craig, A. R., Maxfield, A. D., **Stein, J. S.**, Renda, C. R., & Madden, G. J. (2014). Do the adjusting- and increasing-delay tasks measure the same construct: Delay discounting? *Behavioural Pharmacology*, 25, 306-315.
 28. Renda, C. R., **Stein, J. S.**, & Madden, G. J. (2014). Impulsive choice predicts poor working memory in male rats. *PLoS ONE*, 9, e93263.
 29. Johnson, P. S., **Stein, J. S.**, Smits, R. R., & Madden, G. J. (2013). Pramipexole-induced disruption of behavioral processes fundamental to intertemporal choice. *Journal of the Experimental Analysis of Behavior*, 99, 290-317.
 30. Smits, R. R., **Stein, J. S.**, Johnson, P. S., Odum, A. L., & Madden, G. J. (2013). Test-retest reliability and construct validity of the experiential discounting task. *Experimental and Clinical Psychopharmacology*, 21, 155-163.
 31. **Stein, J. S.**, Johnson, P. S., Renda, C. R., Smits, R. R., Liston, K. J., Shahan, T. A., & Madden, G. J. (2013). Early and prolonged exposure to reward delay: Effects on impulsive choice and alcohol self-administration in male rats. *Experimental and Clinical Psychopharmacology*, 21, 172-180.

32. **Stein, J. S.**, Smits, R. R., Johnson, P. S., Liston, K. J., & Madden, G. J. (2013). Effects of reward bundling on male rats' preference for larger-later food rewards. *Journal of the Experimental Analysis of Behavior*, *99*, 150-158.
33. Johnson, P. J., Madden, G. J., & **Stein, J. S.** (2012). Effects of acute pramipexole on male rats' preference for gambling-like rewards II. *Experimental and Clinical Psychopharmacology*, *20*, 167-172.
34. **Stein, J. S.**, Pinkston, J. W., Brewer, A. T., Francisco, M. T., & Madden, G. J. (2012). Delay discounting in Lewis and Fischer 344 rats: Steady-state and rapid-determination adjusting-amount procedures. *Journal of the Experimental Analysis of Behavior*, *97*, 303-319
35. Madden, G. J., Francisco, M. T., Brewer, A. B., & **Stein, J. S.** (2011). Delay discounting and gambling. *Behavioural Processes*, *87*, 43-49.

Peer-reviewed articles, under review

1. Ruhi, P., **Stein, J. S.**, & Bickel, W. K. (under review). Episodic future thinking specific to smoking-related illness: Effects on delay discounting, cigarette demand, and cigarette craving. *Experimental & Clinical Psychopharmacology*
2. Epstein, L. H., Paluch, R. A., **Stein, J. S.**,... & Bickel, W. K., (under review). Role of delay discounting in predicting change in HbA1C for individuals with prediabetes. *Annals of Behavioral Medicine*.
3. Heckman, B. W., Fong, G. T., Borland, R., McNeill, A., Hitchman, S., El Nahas, G., O'Connor, R. J., ... **Stein, J. S.**, ... Cummings, M. K. (under review). The influence of vaping and regulatory environment on cigarette demand: Behavioral economic perspective across four countries. *Addiction*.
4. Pope, D., Poe, L., **Stein, J. S.**, Kaplan, B. A., DeHart, W. B., Mellis, A. M., Heckman, B. W., Epstein, L. H., & Bickel, W. K. (under review). Experimental tobacco marketplace: IV. Demand and substitutability a function of cigarette taxes and e-liquid subsidies. *Tobacco Control*.
5. Deshpande, H. U, Mellis, A. M., Lisinski, J. M., **Stein, J. S.**,... & Bickel, W.K. (under review) Common neural substrates for delay discounting and snack purchasing in prediabetics. *Brain & Cognition*.
6. Kaplan, B. A., Pope, D. A., DeHart, W., B., **Stein, J. S.**, Bickel, W. K., Koffarnus, M. K. (under review). A crowdsourced behavioral economic evaluation of initial purchasing perceptions for reduced-nicotine cigarettes. *Nicotine & Tobacco Research*.
7. **Stein, J. S.**, Mellis, A. M., Wrenn, J. E., & Bickel, W. K. (under review). Negative income shock increases delay discounting and cigarette craving. *PLOS One*
8. Epstein, L. H., Paluch, R. A., **Stein, J. S.**, Quattrin, T. Mastrandrea, L. D., Bree, K., Sze, Y., Greenawald, M. H., & Bickel., W. K. (under review). Delay discounting and adherence in prediabetes. *Health Psychology*.

Peer-reviewed articles, in preparation

1. **Stein, J. S.**, & Bickel, W. K. (in preparation). Initial validation of a probability-based tobacco product purchase task: Implications for abuse liability assessment.
2. **Stein, J. S.**, Tegge, A. N., Perry, E. S., Heckman, B. W., Pope, D. A., Fong, G. T., Cummings, K. M., & Bickel, W. K. (in preparation). Delay discounting and behavioral economic demand for cigarettes predict smoking cessation and relapse at 6-month

follow-up.

3. **Stein, J. S.**, Perry, E. S., Heckman, B. W., Pope, D. A., Fong, G. T., Cummings, K. M., Chaloupka, F., & Bickel, W. K. (in preparation). E-cigarette flavor restrictions reduce e-cigarette demand in former cigarette smokers who have transitioned to e-cigarettes, but not dual smokers/e-cigarette users.
4. **Stein, J. S.**, Satyal, M. K., Bianco, A., O'Connor, R. J., Hatsukami, D. K., & Bickel, W. K. (in preparation). Experimental Tobacco Marketplace: VI. Substitution between cigarettes and four first-generation e-cigarettes in experienced and naïve users.

Published Abstracts

1. Bickel, W., Snider, S., Hanlon, C., & **Stein, J.** (2017). Continuous theta burst TMS as a tool to change decision-making in smokers. *Brain Stimulation: Basic, Translational, and Clinical Research in Neuromodulation*, 10(2), 487.
2. Koffarnus, M. N., Franck, C. T., **Stein, J. S.**, & Bickel, W. K. (2015). A behavioral economic demand model modification to improve versatility. *Drug and Alcohol Dependence*, 156, e116.
3. **Stein, J. S.**, Daniel, T. O., Epstein, L. H., & Bickel, W. K. (2015). Episodic future thinking reduces delay discounting and cigarette smoking. *Drug and Alcohol Dependence*, 156, e212.

ORAL AND POSTER PRESENTATIONS

Oral presentations

1. **Stein, J. S.**, Heckman, B. W., Pope, D. A., Perry, E. S., & Bickel, W. K. (June, 2018). Cross-sectional and longitudinal associations between delay discounting, cigarette smoking, and e-cigarette use. Paper presented at the annual meeting of the College of Problems on Drug Dependence, San Diego, CA.
2. **Stein, J. S.**, Satyal, M. K., & Bickel, W. K. (May, 2017). Effects of cigarette filter ventilation on behavioral economic demand and substitution. Paper presented at the annual meeting of the Association for Behavior Analysis International, Denver, CO.
3. Bickel, W. K., Snider, S.E., Hanlon, C., & **Stein, J. S.** (March, 2017). Continuous theta burst TMS as a tool to change decision-making in smokers. In C. Hanlon, Chair. *Addiction. The Next Frontier in TMS Treatment Development? Translating Our Knowledge of Neural Circuits to Develop Evidence-Based Substance Abuse Treatment Strategies*. Symposium paper presented at the 2nd International Brain Stimulation Conference, Barcelona, Spain.
4. Snider, S.E., Hanlon, C.A., **Stein, J.S.**, Bickel, W.K. (March, 2017) Continuous Theta Burst TMS as a tool to change decision-making in smokers. In C.E. Sheffer (Chair), *Innovative Brain Stimulation Techniques for Treating Tobacco Dependence*. Symposium present at the annual meeting of the Society for Research on Nicotine and Tobacco (CPDD), Florence, Italy.
5. **Stein, J. S.**, Vannoy, M. R., Koffarnus, M. K., & Bickel, W. K. (June, 2016). Naturalistic assessment of cigarette and e-cigarette demand and substitution. Paper presented at the annual meeting of the International Study Group Investigating Drugs as Reinforcers, Palm Springs, CA.
6. Bickel, W.K., Snider, S. E., **Stein, J. S.**, Mithoefer, O., Bianco, A. G., Perry, E. S., Hanlon, C.

- A. (June, 2016). Theta burst TMS as a tool to change smoking behavior. In C. A. Hanlon (Chair), Developing Innovative Brain Stimulation Treatment Options for Substance Dependent Individuals: Translating Basic Science Knowledge of Neural Circuits to Our Clinics. Symposium presented at the annual meeting of College on Problems of Drug Dependence, Palm Springs, CA.
7. **Stein, J. S.**, Vannoy, M. R., & Bickel, W. K. (May, 2016). Predicting e-cigarette consumption in an uncertain future: Insights from behavioral economics. In **Stein, J. S. (Chair)**, Recent Findings in Behavioral Economics: Method Innovations, E-Cigarette Abuse Liability, and Schedule-Dependent Choice. Symposium paper presented at the annual meeting of the Association for Behavior Analysis International, Chicago, IL.
 8. **Stein, J. S.**, Koffarnus, M. K., & Bickel, W. K. (March, 2016). Hypothetical e-cigarette attributes modulate behavioral economic demand and substitution. In Huang, J. (Chair), Public Health Policy and Health Economics. Paper presented at the annual meeting of the Society for Research on Nicotine and Tobacco, Chicago, IL.
 9. **Stein, J. S.**, Koffarnus, M. K., & Bickel, W. K. (March, 2016). Effects of negative income shock on cigarette demand and craving. In Augustin, E. (Chair), Smoking in Low-Income Populations. Paper presented at the annual meeting of the Society for Research on Nicotine and Tobacco, Chicago, IL.
 10. **Stein, J. S.** (November, 2015). Predicting e-cigarette consumption in an uncertain future: Insights from behavioral economics. Invited talk presented at the annual Virginia Tech Carilion Research Institute faculty retreat, Roanoke, VA.
 11. **Stein, J. S.**, Renda, C. R., Barker, S. M., Draper, J., Hess, B., & Madden, G. J. (May, 2014). Impulsive choice, alcohol self-administration, and pre-exposure to delayed rewards. In P. Erb (Chair), Translational Research in Health Behavior. Symposium paper presented at the annual meeting of the Association for Behavior Analysis, Chicago, IL.
 12. **Stein, J. S.** (October, 2013; invited presentation). Delay discounting and alcohol self-administration: Naturally occurring and experimentally induced relations. Invited colloquium talk presented at Virginia Tech Carilion Research Institute, Roanoke, VA.
 13. **Stein, J. S.**, Renda, C. R., Barker, S. M., Liston, K. J., & Madden, G. J. (October, 2013). Impulsive choice, alcohol self-administration, and prolonged pre-exposure to reward delay. In **Stein, J. S. (Chair)**, Delay Discounting in the Human and Nonhuman Laboratories: Effects of History, Drug Administration, and Commodity Type. Symposium paper presented at the annual, international meeting of the Association for Behavior Analysis, Mérida, Mexico.
 14. **Stein, J. S.**, Renda, C. R., Barker, S., Liston, K. J., & Madden, G. J. (May, 2013). Impulsive choice and alcohol self-administration in male rats: naturally occurring and experimentally induced relations. Symposium paper presented at the annual meeting of the Association for Behavior Analysis, Minneapolis, MN.
 15. **Stein, J. S.**, Johnson, P. S., Brewer, A. T., Smits, R. R., & Madden, G. J. (May, 2011). Training self-control choice: Implications, effects, and obstacles. Symposium paper presented at the annual meeting of the Association for Behavior Analysis, Denver, CO.
 16. **Stein, J. S.**, Francisco, M. T., Pinkston, J. W., Johnson, P. S., Brewer, A. T., & Madden G. J. (May, 2010). Delay discounting in Lewis and Fischer 344 rats: Implications for an adjusting-amount procedure to detect between-strain differences. Symposium paper presented at the annual meeting of the Association for Behavior Analysis, San Antonio, TX.

17. Brewer, A. T., **Stein, J. S.**, Johnson, P. S., Francisco, M. T., Williams, D. C., Saunders, K., & Madden, G. J. (May, 2010). Pausing following rich-to-lean transitions under variable-ratio schedules: Effects of schedule configuration. In J. Everly (Chair), Recent Findings on the Disruptive Effects of Transitions between Favorable and Unfavorable Schedules of Reinforcement. Symposium paper presented at the annual meeting of the Association for Behavior Analysis International, San Antonio, TX.
18. Johnson, P. S., **Stein, J. S.**, Brewer, A. T., Francisco, M. T., & Madden, G. J. (May, 2010). Effects of acute pramipexole on delay sensitivity in a concurrent-chains procedure. In A. A. Keyl (Chair), Quantitative Analysis of the Effects of Drugs on Behavior. Symposium paper presented at the annual meeting of the Association for Behavior Analysis International, San Antonio, TX.
19. Brewer, A. T., Smits, R. R., Johnson, P. S., Francisco, M. T., **Stein, J. S.**, & Madden, G. J. (May, 2010). A touch-screen apparatus using Visual Basic in the animal laboratory. In M. Perone (Chair), Advances in Computer Technology to Conduct Laboratory Experiments. Symposium presented at the annual meeting of the Association for Behavior Analysis International, San Antonio, TX.
20. Brewer, A. T., Johnson, P. S., **Stein, J. S.**, Francisco, M. T., Williams, D. C., & Madden, G. J. (May, 2009). Pre-ratio pausing following rich-to-lean transitions on multiple schedules in Fischer 344 and Lewis rats. Symposium paper presented at the annual meeting of the Association for Behavior Analysis, Phoenix, AZ.
21. Johnson, P. S., Brewer, A. T., Pinkston, J. W., **Stein, J. S.**, Francisco, M. T., & Madden, G. J. (May, 2009). Delay discounting processes in pathological gambling: Pharmacological induction of impulsive behavior in the nonhuman laboratory. Symposium paper presented at the annual meeting of the Association for Behavior Analysis, Phoenix, AZ.

Poster presentations

1. Mellis, A.M., Deshpande, H.U, Lisinski, J.M., **Stein, J.S.**,... & Bickel, W.K. (August, 2018) Neuromaging of decision-making in reinforcer pathology. Poster to be presented at the annual meeting of the American Psychological Association, San Francisco, CA.
2. **Stein, J. S.**, Turner, J. K. & Bickel, W. K. (June, 2018). Effects of positive and negative valence in episodic future thinking on delay discounting and cigarette craving. Poster presented at the annual meeting of the College on Problems of Drug Dependence, Montreal, CA.
3. Athamneh, L. A., **Stein, J. S.** Amlung, M., & Bickel, W. K. (June, 2018). Validation of a brief behavioral economic assessment of demand among cigarette smokers. Poster presented at the annual meeting of the College on Problems of Drug Dependence, San Diego.
4. **Stein, J. S.**, & Bickel, W. K. (February, 2018). Effects of filter ventilation on behavioral economic demand for cigarettes: A preliminary investigation. Poster presented at the annual meeting of the Society for Research on Nicotine and Tobacco, Florence, IT.
5. Athamneh, L. A., **Stein, J. S.** Amlung, M., & Bickel, W. K. (February, 2018). Narrative theory III: Romance vs. sex narratives in changing delay discounting and tobacco valuation. Poster presented at the annual meeting of Society for Research on Nicotine & Tobacco, Baltimore, MD.
6. Athamneh, L. N., **Stein, J. S.**, Quisenberry, A. J., Pope, D. A., & Bickel, W. K. (June, 2017). The association between parental history and delay discounting among individuals in

- recovery from addiction. Poster presented at the annual meeting of the College on Problems of Drug Dependence, Montreal, Canada.
7. Mellis, A.M., **Stein, J.S.**, Bickel, W.K. (May, 2017). Narrative content, not source, drives differences in delay discounting. Poster presented at the 29th Association for Psychological Science Annual Convention, Boston, MA.
 8. Athamneh, L. N., **Stein, J. S.**, & Bickel, W. K. (May, 2017). The effect of mating and self-protection motives on delay discounting. Poster presented at the annual meeting of the Association of Psychological Science, Boston, MA.
 9. Mellis, A.M., **Stein, J.S.**, & Bickel, W.K. (May, 2017). Narrative content, not source, drives differences in delay discounting. Poster presented at the inaugural meeting of Trans-Disease Decision Processes and Therapeutics conference, Boston, MA.
 10. Stuart, M.A., Mellis, A.M., **Stein, J.S.**, McBee, H., Greenawald, M. H., Epstein, L. H., & Bickel, W.K. (May, 2017). Recruiting prediabetic populations for behavioral research. Poster presented at the inaugural meeting of the Trans-Disease Decision Processes and Therapeutics conference. Boston, MA, USA. May, 2017.
 11. **Stein, J. S.**, Koffarnus, M. K., & Bickel, W. K. (March, 2017). Effects of filter ventilation on behavioral economic demand for cigarettes: A preliminary investigation. Poster presented at the annual meeting of the Society for Research on Nicotine and Tobacco, Florence, IT.
 12. Athamneh, L. N., **Stein, J. S.**, & Bickel, W. K. (May, 2017). Will delay discounting predict intention to quit smoking? Poster presented at the annual meeting of the Society for Research on Nicotine & Tobacco, Florence, IT.
 13. **Stein, J. S.**, & Bickel, W. K. (May, 2016). Modulating behavioral-economic demand and substitution using hypothetical e-cigarette attributes. Poster presented at the annual NIH Tobacco Regulatory Science conference, Bethesda, MD.
 14. **Stein, J. S.**, Wilson, A. G., Koffarnus, M. K., & Bickel, W. K. (August, 2015). Relative demand for snus and nicotine gum depends on the concurrent availability of cigarettes. Poster presented at the annual meeting of the American Psychological Association, Toronto, ON.
 15. **Stein, J. S.**, Daniel, T. O., Epstein, L. H., & Bickel, W. K. (June, 2015). Episodic future thinking reduces delay discounting and cigarette smoking. Poster presented at the annual meeting of the College on Problems of Drug Dependence, Phoenix, Arizona.
 16. Koffarnus, M. N., Franck, C. T., **Stein, J. S.**, & Bickel, W. K. (June, 2015). A behavioral economic demand model modification to improve versatility. Poster presented at the annual meeting of the College on Problems of Drug Dependence, Phoenix, Arizona.
 17. **Stein, J. S.**, Wilson, A. G., Koffarnus, M. K., Franck, C.T., & Bickel, W. K. (February, 2015). Economic demand for cigarettes and cigarette alternatives: Laboratory and real-world abuse liability. Poster presented at the annual meeting of the Society for Research on Nicotine and Tobacco, Philadelphia, PA.
 18. **Stein, J. S.**, Renda, C. R., Barker, S., Liston, K. J., & Madden, G. J. (September, 2013). Impulsive choice, alcohol self-administration, and prolonged pre-exposure to delayed reinforcement. Poster presented at the first annual meeting of Behavior Change, Health, and Health Disparities, Burlington, VT.
 19. Renda, C. R., **Stein, J. S.**, & Madden, G. J. (May, 2013). Effects of working memory training on delay discounting in rats. Poster presented at the annual meeting of the

Society for the Quantitative Analysis of Behavior, Minneapolis, MN.

20. **Stein, J. S.**, Smits, R. R., Johnson, P. S., Renda, C. R., Liston, K. J., Barker, S., & Madden, G. J. (May, 2012). Effects of prolonged exposure to delayed reinforcement on impulsive choice and alcohol consumption in rats. Poster presented at the annual meeting of the Association for Behavior Analysis, Seattle, WA.
21. Johnson, P. S., **Stein, J. S.**, Smits, R. R., & Madden, G. J. (May, 2012). Pramipexole disrupts discrimination processes critical for intertemporal choice. Poster presented at the annual meeting of the Society for the Quantitative Analysis of Behavior, Seattle, WA.
22. Smits, R. R., **Stein, J. S.**, Johnson, P. S., & Madden, G. J. (April, 2012). Essential value of gambling-like schedules of reinforcement in male rats. Poster presented at the annual meeting of the Four Corners Association for Behavior Analysis, Winter Park, CO.
23. **Stein, J. S.**, Johnson, P. S., Brewer, A. T., Francisco, M. T., & Madden, G. J. (May, 2010). Experimental manipulation of delay discounting: Implications for subsequent gambling-like behavior. Poster presented at the annual meeting of the Association for Behavior Analysis, San Antonio, TX.
24. **Stein, J. S.**, Johnson, P. S., Brewer, A. T., Francisco, M. T., & Madden, G. J. (May, 2009). A percentile-like schedule for training delay tolerance in Wistar rats. Poster presented at the annual meeting of the Association for Behavior Analysis, Phoenix, AZ.
25. Brewer, A. T., Johnson, P. S., **Stein, J. S.**, Francisco, M. T., Williams, D. C., & Madden, G. J. (May, 2009). Pre-ratio pausing following rich-to-lean transitions on multiple schedules in Fischer 344 and Lewis rats. Symposium paper presented at the annual meeting of the Association for Behavior Analysis, Phoenix, AZ.
26. Johnson, P. J., Brewer, A. T., **Stein, J. S.**, Francisco, M. T., & Madden, G. J. (May, 2009). Effects of pramipexole on choice for differential rewards using a within-session increasing delay procedure (May, 2009). Poster presented at the annual meeting of the Association for Behavior Analysis, Phoenix, AZ.
27. Francisco, M. T., Brewer, A. T., **Stein, J. S.**, Johnson, P. J., & Madden, G. J. (May, 2009). Impulsivity as a predictor of preference for gambling-like outcomes. Poster presented at the annual meeting of the Association for Behavior Analysis, Phoenix, AZ.
28. Johnson, P. J., Brewer, A. T., Pinkston, J. W., **Stein, J. S.**, Francisco, M. T., & Madden, G. J. (May, 2009). Delay discounting processes in pathological gambling: Pharmacological induction of impulsive behavior in the nonhuman laboratory. Symposium paper presented at the annual meeting of the Association for Behavior Analysis, Phoenix, AZ.
29. Brewer, A. T., Johnson, P. S., **Stein, J. S.**, Pinkston, J., Williams, D. C., & Madden, G. J. (October, 2008). Pre-ratio pausing following rich-to-lean transitions in Fischer 344 and Lewis rats. Poster presented at the annual meeting of the Mid-American Association for Behavior Analysis, Champaign-Urbana, IL.
30. **Stein, J. S.**, Brewer A. T., & Williams, D. C. (May, 2008). Maladaptive behaviors following rich-to-lean transitions on multiple schedules. Poster presented at the annual convention of the Association for Behavior Analysis, Chicago, IL.
31. Brewer, A. T., Johnson, P. S., **Stein, J. S.**, Pinkston, J., Williams, D. C., & Madden, G. J. (May, 2008). Pre-ratio pausing following rich-to-lean transitions on multiple schedules in Fischer 344 and Lewis rats. Poster presented at the annual meeting of the Association

for Behavior Analysis, Chicago, IL.

32. **Stein, J. S.**, Brewer A. T., Williams, D. C. (October, 2007). Maladaptive behaviors following rich-to-lean transitions on multiple schedules. Poster presented at the Southeastern Association for Behavior Analysis, Athens, GA.
33. Brewer, A. T., Smith, N. G., Johnson, P. S., **Stein, J. S.**, Pinkston J. W., Williams D. C., & Madden, G. J. (August, 2007). Delay discounting as a predictor of pre-ratio pausing on multiple schedules in Fischer 344 and Lewis rats. Poster presented at the annual meeting of the Association for Behavior Analysis, Sydney, Australia
34. Brewer, A. T., Johnson, P. S., Pyszczynski, A. D., **Stein, J. S.**, Smith, N. G., Wu, H., Williams, D. C., Pinkston, J.W., Woods, J., & Madden, G.J. (May, 2007). Preliminary effects of pramipexole on choice for differential rewards in a delay discounting paradigm. Poster presented at the annual convention of the Association for Behavior Analysis, San Diego, CA.
35. Brewer, A. T., **Stein, J. S.**, Saunders, K., Madden, G. J., & Williams, D. C. (May, 2007). Maladaptive behaviors following rich-to-lean transitions. Poster presented at the annual convention of the Association for Behavior Analysis, San Diego, CA.

TEACHING

2016	Guest Lecturer (one semester), Department of Neuroscience, Virginia Tech, NEUR 4544 Neuroeconomics. Lecture topic: "The Behavioral Economics of Substance Use Disorders."
2013	Instructor (two semesters), Department of Psychology, Utah State University. PSY 1400/1410 Analysis of Behavior: Basic Principles.
2008-2010	Graduate Teaching Assistant (five semesters), Department of Applied Behavioral Science, University of Kansas. ABSc 509 Contemporary Behavioral Science: Historical, Conceptual, and Comparative Foundations.
2008	Graduate Teaching Assistant (one semester), Department of Applied Behavioral Science, University of Kansas. ABSc 671/861 Applied Behavior Analysis.

GRADUATE STUDENT COMMITTEES

2017-2018	Michael Sofis, doctoral dissertation committee member, Applied Behavioral Science, University of Kansas
2017-2018	Michael Sofis, comprehensive exam committee member, Applied Behavioral Science, University of Kansas
2017-2018	Olivia Privitera, masters thesis committee member, Human Nutrition, Food, and Exercise, Virginia Tech
2016-present	Liqa Athamneh, doctoral dissertation committee member, Translational Biology, Medicine, and Health, Virginia Tech

RESEARCH MENTORSHIP

**Co-mentored with graduate advisor*

2018-present	Elizabeth Taylor, undergraduate student, Virginia Tech <i>Project title:</i> Delay discounting and treatment adherence in hormone-responsive breast cancer
2018-present	Will Craft, graduate student, Translational Biology, Medicine, and Health, Virginia Tech <i>Project title:</i> Exploring experimental interventions for behavioral health.

- 2018-present Elysia Lin and Madison Stein, high school students, Roanoke Valley Governor's School
Project title: Analysis of delay discounting and financial planning in at-risk populations
- 2016-present Stephen Owen, medical student, Virginia Tech Carilion School of Medicine.
Project Title: Delay discounting as a predictor of smoking cessation following head and neck cancer diagnosis.
- 2016 Emma McCoig, undergraduate student, Department of Neuroscience, Virginia Tech.
Project Title: Cigarette and e-cigarette demand and substitution
- 2016 Medha Satyal, graduate student, Translational Biology, Medicine, and Health, Virginia Tech.
Project Title: Comparison of behavioral economic substitution among four electronic cigarette brands.
- 2016 Liqa Athamneh, graduate student, Translational Biology, Medicine, and Health, Virginia Tech.
Project Title: Delay discounting predicts intention to quit smoking.
- 2015-2016 Marianne Vannoy, undergraduate student, Department of Psychology, Jefferson College of Health Sciences.
Project Title: Behavioral economic demand for conventional and electronic cigarettes.
- 2014-2018 Perisa Ruhi, medical student, Virginia Tech Carilion School of Medicine.
Project Title: Effects of episodic future thinking specific to smoking-related illness on delay discounting, cigarette demand, and cigarette craving.
- 2013-2014 Shayne Barker*, undergraduate student, Department of Psychology, Utah State University.
Project Title: The sunk-cost fallacy: relations to past and future delay discounting.
- 2012-2013 Kennan Liston*, undergraduate student, Department of Psychology, Utah State University.
Project Title: Elasticity of demand under random- and fixed-ratio schedules of reinforcement.
- 2012-2013 Adam Maxfield*, undergraduate student, Department of Psychology, Utah State University.
Project Title: Impulsive choice in the adjusting- and increasing-delay tasks in rats: Within-subjects comparisons.
- 2008-2013 60+ undergraduate research assistants earning course credit in an independent topics research course

REFERENCES

Leonard H. Epstein, Ph.D.
Professor
Department of Pediatrics
University at Buffalo
Email: lhenet@buffalo.edu
Phone: (716) 829-3400

Gregory J. Madden, Ph.D.
Professor
Department of Psychology
Utah State University
Email: greg.madden@usu.edu
Phone: (435) 881-8477

Timothy A. Shahan, Ph.D.
Professor
Department of Psychology
Utah State University
Email: tim.shahan@usu.edu
Phone: (435) 770-7619